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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/823,162	03/30/2001	Mauro Colombo	G93-059	8115

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EXAMINER

CADUGAN, ERICA E

ART UNIT	PAPER NUMBER
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3722

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DATE MAILED: 10/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/823,162

Applicant(s)

COLOMBO, MAURO

Examiner

Erica E Cadugan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 3.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Faxing of Responses to Office Actions

1. In order to reduce pendency and avoid potential delays, TC 3700 is encouraging FAXing of responses to Office Actions directly into the Group at (703) 872-9302 or, for responses after final rejection only, to (703) 872-9303. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into TC 3700 will be promptly forwarded to the examiner.

Specification

2. The abstract of the disclosure is objected to because it contains legal phrasing such as "means" or "said". Correction is required. See MPEP § 608.01(b).

Claim Objections

3. The claims are objected to because they include reference characters which are not enclosed within parentheses. An example of this is found in claim 6, line 1, but it is noted that this is not the only such occurrence in the claims.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

4. Claim 5 is objected to because of the following informalities: in claim 5, line 2, "motorised" should be --motorized--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 14-15, as best understood, are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 14, in lines 12-13, sets forth the limitation “means (30) designed to lock the said support (16) during rotation”. If it is intended that the locking means lock the support during rotation of the support, this does not appear to be consistent with the manner in which the operation of the locking means is described in the specification. For example, see page 5, line 18 through page 6, line 1, and especially note that as described on page 5, line 24 through page 6, line 1, the specification teaches that the chamber 30 operates “to lock support 16 by friction”. Thus, the locking means locks the rotated support in a desired rotated position in order to *prevent* undesired rotation thereof, and does not provide locking of the support while also providing rotation of the support. Note that claim 15 also contains the limitation “means designed to lock the said support (16) during rotation”, and that the same reasoning applied to claim 14 equally applies to this limitation in claim 15.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-15 are replete with instances that do not particularly point out and distinctly claim the subject matter of applicant's invention. Examples of these instances are listed below, but these instances are not limited to the listed examples. Applicant is advised to closely review the claims for other occurrences.

Throughout the claims, it is unclear to what "it" refers. An example of this is found in claim 1, line 3, but this is not the only such occurrence in the claims.

In claim 1, it is unclear what is intended to be encompassed by "of the type". The addition of the word "type" to an otherwise definite expression extends the scope of the expression so as to render it indefinite. *Ex parte Copenhaver*, 109 USPQ 118 (Bd. App. 1955). See MPEP section 2173.05(c).

In claim 1, last two lines, it is unclear as set forth in the claim what device or structure is "designed to allow...", e.g., the chuck, the operating head, etc. It is additionally unclear as set forth in the claim what device or structure is being so positioned, i.e., is designed to allow angular positioning of what around a second axis?

In claim 6, it is noted that "axis" in line 2 lacks a modifying article such as --an--, --the--, or --said--, rendering it unclear whether the claimed "axis" is intended to be different from one of the previously-claimed axes. Further note that if a definite article such as --the-- or --said-- were provided to so modify "axis" in claim 6, "the axis" or "said axis" would then lack sufficient antecedent basis in the claim as plural axes have previously been set forth.

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There are several positively recited limitations that lack sufficient antecedent bases in the claims. An example of this is: "the said support" in claim 7 (plural "supports" previously set forth). This is not meant to be an all-inclusive list of such occurrences. Applicant is required to review the claims and correct any other occurrences of limitations lacking sufficient antecedent basis.

In claim 8, it is unclear as set forth in the claim to what device or structure the claimed "sides" belong, e.g., the gear pairs, the machine, the power transmission system, etc. A similar situation exists in claim 12 with the limitations "on one side" and "on the other".

In claim 11, penultimate line, it is unclear, via the use of the indefinite article "an" whether "an axis" is intended to be the same as or different from the previously set forth second axis.

The term "rapid" in claim 13 is a relative term which renders the claim indefinite. The term "rapid" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

In claim 13, last line "duct" lacks a modifying article such as --a-- or --the--, rendering it unclear whether the claimed "duct" is different from the one previously set forth in the claim. Note that it is unclear as claimed whether the claimed duct is connected to itself and rotates in relation to itself.

Note that in claim 14, "the previous one" lacks insufficient antecedent basis because the most recently described axis in the claim is not a singular axis, but is "three Cartesian axes", rendering it unclear which of these plural "three Cartesian axes" is "the previous one".

As set forth in claim 14, lines 12-13, the limitation “means (30) designed to lock the said support (16) during rotation” is unclear. Firstly, it is unclear as claimed to what structure or device is referred via the “during rotation” limitation, i.e., during rotation of what? Secondly, note that “the said support” lacks antecedent basis as there are plural supports set forth in the claim (not the only such occurrence in this claim).

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 3-7, 9, and 10, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 4,709,465 (Lewis et al.)

Lewis et al. teaches a machine tool ram or “structure” that moves along X, Y, and Z axes (Figures 1-2, col. 7, lines 14-21). Located within the ram and “fitted thereto” for rotation about the longitudinal C axis (shown in Figures 1-2 as the vertical direction) is drive shaft or “first support” 40. Interchangeable spindle units or “chuck units” 54 are connected to or “fitted to” the drive shaft 40 (Figures 2 and 4-5). Note that the drive shaft 40 is rotated about its own “first” axis, and additionally, the device is “designed to allow” positioning around a second axis B, which is a vertical axis parallel to the first axis (Figures 3.3-5, col. 4, lines 40-55. for example).

Regarding claims 3-5, note that Lewis et al. teaches driving motor 43 for driving shaft 40 which in turn drives units 54 (Figure 1, col. 3, lines 3-13).

Regarding claim 6, Lewis also teaches a “rotating support” or drumhead 36 fitted to shaft 40 (Figure 3.3, col. 3, lines 14-18, for example).

Regarding claim 7, note that the units 54 are connected to electrical connectors 136 and fluid connectors 138 located on the drumhead 36, and that some of the fluid connectors are for hydraulic fluid (Figures 3.3, 3.2, col. 6, lines 18-34). Additionally, regarding claims 6 and 9, Lewis teaches plural grippers 82 that grip plural knobs or “shafts” 90 of units 54 in order to retain or “lock” the units 54 (Figures 4-5, col. 3, line 60 through col. 4, line 21).

Regarding claim 10, note that Lewis teaches a “chamber” or sleeve 140 surrounding the drumhead 36, which sleeve has a circumferential inner channel 142 that deforms when pressurized with hydraulic fluid to lock the position of the drumhead 36 (col. 7, lines 29-44, Figure 3.3).

11. Claims 1-6, 8, 11, and 14, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,385,436 (Corsi, hereinafter ‘436).

‘436 teaches a support arm 1 or “structure” movable along three Cartesian axes (col. 1, lines 33-40 for example). Connected to the “structure” 1 is a fork or “first support” 2 that rotates about a “first” axis C via thrust bearing 34 (Figure 1). Chuck 4 “projects” from the fork 2 (Figure 1) and “allows” angular positioning thereof about axis A via bearings 7 (Figure 1). Note that A and C are perpendicular axes (Figure 1). Regarding the interchangeability of the chuck, chuck 4 is considered to be “interchangeable” in that it is “able” to be interchanged with another chuck, i.e., by manually replacing the chuck 4 shown in Figure 1 with another one.

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Regarding claims 3-5 and 8, note that fork 2 "incorporates" a power transmission system including bevel gear pairs 12, 13, etc (Figure 1) connected ultimately to motor 8, and that this power transmission system is coupled to the chuck 4 (Figure 1).

Regarding claim 6, note that hub 6, for example, is a support that rotates via the bearings 7.

Regarding claim 11, note that the rotation about axis A is "controlled" (col. 3, lines 58-66).

Regarding claim 14, note that the rotational position is fixed or "locked" via racks (col. 1, lines 49-55).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 12-13, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,385,436 (Corsi, hereinafter '436) as applied to claims 1, 6, and 8 above, and further in view of U.S. Pat. No. 4,652,190 (Corsi, hereinafter '190).

'436 teaches all aspects of the claimed invention as described in the above rejection based thereon, but does not teach any sort of "ring-shaped chamber connected on one side to exhausting devices and on the other to ducts".

'190 teaches a spindle device including a fork housing 1 that has mounted thereto a prop unit 2 for a mandrel 3 used to rotate a cutting tool (col. 2, lines 20-24, Figures 2, 4). '190 teaches

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that the fork housing 1 contains a ring chamber 9 (Figure 2) connected on the left side (as viewed in Figure 2) to a suction or “exhausting” device (col. 2, lines 41-46) and connected on the right side thereof (as viewed in Figure 2) to ducts 8 and 10 (Figures 2-3) that terminate “close” to the tool at opening 7 in order to remove the dust machined by the tool (col. 3, lines 25-47).

Regarding claim 13, note that the duct 10 is “coupled” to the ring chamber 9 (Figure 2), that the duct 8 is integral with unit 2 (Figure 2), the duct 8 is coupled to the duct 10, and that the duct 8 rotates with prop unit 2 relative to the duct 10 in fork housing 1 (Figures 2-3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the chip/dust exhausting device taught by ‘190 to the spindle device taught by ‘436 for the purpose of providing a device for removing machined dust or chips that can be hazardous to the health of the machine operator (col. 1, lines 44-47 of ‘190, for example).

Claim Rejections - 35 USC § 102/103

14. Claims 1-5, 14, and 15, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,538,375 (Kwapisz), or in the alternative, as being obvious over 5,538,375 (Kwapisz) in view of U.S. Pat. No. 5,678,291 (Braun).

Kwapisz teaches a spindle positioning device (Figure 1). Principle body or “structure” 2 is connected to a milling machine for sliding movement in relationship thereto (Figure 1, col. 3, lines 50-56). Regarding the movement along three Cartesian axes, it is noted that this is a functional limitation, and there is no structure set forth in the claim for facilitating or performing any such movement. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. See MPEP Section

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2112.01. Thus, in the instant case, since Kwapisz does not “teach away” from moving the structure 2 along a set of “three Cartesian axes”, this function is presumed to be inherent.

Additionally, Kwapisz teaches an interposed piece or “first support” 5 fitted to the structure such that it rotates about “first” axis XX’ (Figures 1-2). Note that spindle 4 is “fitted to” the “first support” 5, and that spindle 4 receives a milling cutter therein (col. 3, lines 55-57) and is thus considered to include a “chuck”. Note also that the cutter, and thus the chuck, rotates about “second” axis YY’ (Figures 1-2, col. 3, lines 55-57) shown in the figures as perpendicular to axis XX’.

Regarding claim 3, note for example, that interposed piece 5 “incorporates” pinions 8 driven by a pinion motorization means found within box 9 (col. 4, lines 15-20, Figure 1).

Regarding the “interchangeable” chuck, it is noted that as set forth in the claims, the chuck of spindle 4 is considered “interchangeable” in that it is “able” to be changed, e.g., by physically removing it from the spindle holder 3 and replacing it with another one.

Regarding claims 4-5, note that spindle 4, and thus also the chuck, are rotated by transmission shaft 21 driven by a gear box, i.e., motor (col. 4, lines 56-64, Figure 1).

Regarding the “means designed to lock the said support during rotation” set forth in claims 14-15, note that Kwapisz teaches hydraulic jacks 10 (col. 4, lines 40-50) and 14 (col. 5, lines 5-36) that lock various rotating portions. Note that the hydraulic jack inherently includes a piston/cylinder arrangement, which thus has a chamber connected to “means designed to introduce a pressurized fluid into it”. Additionally, as set forth in the claim, any material is considered “deformable” as claimed in that it is “able” to be deformed.

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In the alternative, Kwapisz is silent about the axes of movement of the body 2, and does not specifically describe the structure of the milling machine to which the body is attached.

However, Braun teaches a machining head 37 of a milling device that is movable along three Cartesian axes (Figures 1-2). Braun specifically teaches that the supporting structure for the machining head described is arranged advantageously to permit easy accessibility to all drive elements for maintenance work (col. 3, lines 5-15, for example).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the specific milling machine providing three Cartesian axes of movement of the milling head taught by Braun for the generic milling machine taught by Kwapisz for the purpose of permitting easy accessibility to all drive elements for maintenance work as taught by Braun.

Conclusion

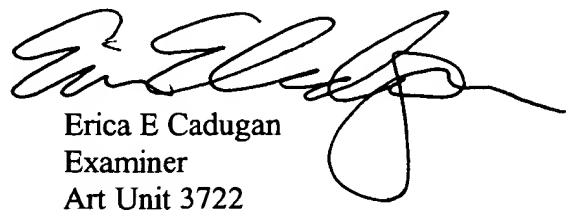
15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. No. 3,760,652 teaches a locking device for locking an indexed part with respect to a stationary part including an inflatable or expandable locking portion. U.S. Pat. No. 4,635,329 and US Pat. Pub. 20020107122 specifically teach angularly adjustable interchangeable chucks. U.S. Pat. No.'s 4,904,131, 4,378,621, 5,286,146, and 4,657,453 teach angularly adjustable spindle devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E Cadugan whose telephone number is (703) 308-6395. The examiner can normally be reached on M-F, 7:30 a.m. to 5:00 p.m., alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea L. Wellington can be reached on (703) 308-2159. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.



Erica E Cadugan
Examiner
Art Unit 3722

eec
September 30, 2002